

PATENT SPECIFICATION

(11) 1443743

1443743

- (21) Application No. 34316/73 (22) Filed 18 July 1973
 (31) Convention Application No. 6719/72 (32) Filed 3 Aug. 1972 in
 (33) Austria (OE)
 (44) Complete Specification published 21 July 1976
 (51) INT CL² B23B 27/16
 (52) Index at acceptance
 B3B 20DY 20E 20F



(54) IMPROVEMENTS RELATING TO TRIANGULAR REVERSIBLE CUTTING INSERTS

(71) We, CUTANIT LIMITED, a British Company of Cliff Lane, Grappenhall, Warrington, Lancashire, do hereby declare the invention, for which we pray that a Patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

Triangular reversible cutting inserts for machining, when made in the exact shape of an equilateral triangle, have angles at the six cutting points of only 60°. Particularly with brittle materials such as cemented carbides, there thus arises the risk of breakage of the sharp points. For this reason the points are usually rounded; however, this entails the risk of chatter and vibration when thin-walled workpieces are machined.

It is an object of the present invention to provide an improved triangular reversible cutting insert which avoids these disadvantages.

According to the invention in the improved reversible cutting insert which is substantially of equilateral triangular shape in plan each cutting point has an included angle which is greater than 60° and is defined by the intersection of a side edge of the insert with an oblique face formed in an adjacent side edge and extending over not more than one half the width of that side edge.

Preferably the included angle is 75°.

The reversible cutting insert in accordance with the invention can be made with very sharp points without the risk arising of parts of the inserts breaking off.

The risk of chatter and vibration is thus eliminated even when machining thin and slender workpieces.

The invention will now be described in greater detail with reference to the accom-

panying drawing in which Figures 1 and 2 show a triangular reversible cutting insert in front elevation and plan respectively.

The body 1 of the illustrated reversible insert forms an equilateral triangle. It is equipped on both sides with the offset chip breaking grooves 2. The configuration at the cutting points 3, can be achieved by grinding oblique faces 4 on the side edges of the reversible insert so that the subsidiary cutting edges 5 with the points 3 are formed. The angle included between the oblique face 4 and the adjacent side edge at the points 3 is in this case 75°.

In principle, it is also possible to produce the reversible inserts in the desired shape in the first place, for example by sintering in the case of cemented carbide or casting in the case of stellites.

The invention is not limited to the illustrated embodiment. For example, the oblique faces 4, which in the case illustrated are inclined to the basal plane, may be disposed at right angles to such plane. Moreover the position of the oblique faces 4 can be such that much larger included angles at the points, such as 90° or more, are formed.

WHAT WE CLAIM IS:—

1. A reversible cutting insert substantially of equilateral triangular shape in plan wherein each cutting point has an included angle which is greater than 60° and is defined by the intersection of a side edge of the insert with an oblique face formed in an adjacent side edge and extending over not more than one half the width of that side edge.

2. A reversible cutting insert as claimed in claim 1, wherein the included angle at each cutting point is 75°.

BEST AVAILABLE COPY

3. A reversible cutting insert as claimed in claim 1 or claim 2 wherein the oblique faces are formed by grinding.

- 5 4. A reversible cutting insert substantially as herein described with reference to the accompanying drawing.

STEVENS, HEWLETT & PERKINS,
Chartered Patent Agents,
5, Quality Court,
Chancery Lane,
London, W.C.2.
Tel.: 01 - 405 8393.

Printed for Her Majesty's Stationery Office, by the Courier Press, Leamington Spa, 1976.
Published by The Patent Office, 25 Southampton Buildings, London, WC2A 1AY, from
which copies may be obtained.

BEST AVAILABLE COPY

1443743

COMPLETE SPECIFICATION

1 SHEET

*This drawing is a reproduction of
the Original on a reduced scale*

FIG. 1.

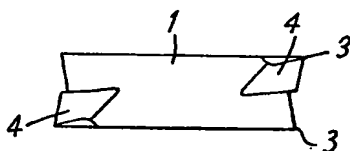
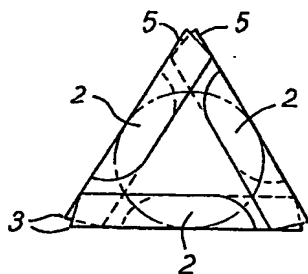


FIG. 2.



BEST AVAILABLE COPY